The Sharp Spikes of Poverty

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The Sharp Spikes of Poverty:

Financial Scarcity Is Related to Higher Levels of Distress Intensity in Daily Life

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Data and Code available under the following link: https://osf.io/pjxfc

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Abstract

Although income is an important predictor of life satisfaction, the precise forces that drive this relationship remain unclear. We propose that financial resources afford individuals a path to reducing the distressing impact of everyday hassles, in turn increasing one's life satisfaction. More specifically, we hypothesize that financial scarcity is associated with greater distress *intensity* in everyday life. Further, we propose that lower perceived control helps explain why financial scarcity predicts higher distress intensity and lower life satisfaction. We provide evidence for these hypotheses in a 30-day daily diary study (522 participants, 13,733 observations). A second study (*N*=376) further suggests that, although everyone relies on social support to ease stress, financial scarcity shrinks the sense one can use economic resources to reduce the adverse impact of daily hassles. While money may not necessarily buy happiness, it reduces the intensity of stressors experienced in daily life—and thereby increase life satisfaction.

Keywords: income, distress, affect, well-being, control

Prior research has found that the relationship between income and life satisfaction—i.e., how someone evaluates their life—is small and positive (e.g., Kahneman & Deaton, 2010; Lindqvist, Ostling, & Cesarini, 2020; Stevenson & Wolfers, 2013). What is less clear is *why* higher levels of income promote life satisfaction. Some studies have suggested that higher income increases life satisfaction because it affords people more positive experiences that foster greater positive affect (i.e., greater happiness; see Cohn et al., 2009; Gamble & Gärling, 2012; Jachimowicz et al., 2020; Lyubomirsky, Tkach, & DiMatteo, 2006). One problem with this reasoning is that the relationship between income and positive affect is much less robust than the relationship between income and life satisfaction (Hudson, Lucas, Donnellan, & Kushlev, 2016; Kahneman & Deaton, 2010; Kushlev, Dunn, & Lucas, 2015; Lindqvist et al., 2020). Indeed, the lack of consistent findings linking income and happiness led Kahneman and colleagues (2006, p. 1908) to postulate that the "belief that high income is associated with good mood is widespread but mostly illusory."

The current research moves beyond the prior focus on happiness as the main route through which income produces greater subjective well-being to theorize an alternative route through which higher income can improve life satisfaction. Building on prior research that found a robust link between income and sadness (but not between income and happiness; Hudson et al., 2016; Kushlev et al., 2015), as well as work that demonstrates the benefits of using income to save time (Mogilner, Whillans, & Norton, 2018; Whillans, Dunn, Smeets, Bekkers, & Norton, 2017), we propose that one function that greater financial resources offers is that they allow individuals additional means to resolve everyday difficulties. Put simply, people facing financial scarcity, which 25% of Americans in 2019 did (Board of Governors of the Federal Reserve System, 2019), often lack the financial resources that can lessen the distress caused by everyday

hassles (Kraus, Piff, & Keltner, 2009; Lachman & Weaver, 1998; Markus & Snibbe, 2005; Testa & Major, 2010; Thompson et al., 1993). Note that we operationalize distress as high-arousal negative affect (Mackinnon et al., 1999), based on prior research which found that unmet needs and desires are particularly likely to prompt distress (Baumeister & Leary, 1995). Thus, money may afford people the ability to make their lives less distressing. In the long-run, these lower levels of distress may, in turn, increase life satisfaction.

Consider how individuals with different financial resources may respond to a somewhat distressing event, such as unexpected rain on their way to the grocery store. If an individual is more financially secure, s/he has the ability to use their financial resources to quickly buy an umbrella, order a taxi, or have groceries delivered to their doorstep. In contrast, a more financially strained individual may not be able to afford any of these options. While both individuals may find the unexpected rain somewhat distressing, only the more financially secure individual can use financial resources to reduce its negative impact. In addition, note that the financial resources afforded to higher-income individual may also alter the likelihood that individuals will experience distressing moments in their daily lives in the first place. For example, a visit to the doctor may be more intensely distressing for a low-income individual who is worried that they cannot afford a potentially high bill, whereas the same may merely be experienced as a hassle by higher-income individuals. In both reactive and proactive ways, lower-income individuals may thus be more likely to experience more intensely distressing episodes in their everyday life.

Our specific hypothesis is that financial scarcity will be related to a higher *intensity* of distress (see Figure 1 for an illustrative depiction which compares intensity and frequency; see also Diener, Larsen, Levine, & Emmons, 1985; Schimmack & Diener, 1997 for a more detailed

description of the difference between intensity and frequency of affect). Note that we do not

make specific predictions about the *frequency* of distress-eliciting everyday hassles. Indeed,

while some research has found that individuals with higher levels of education reported

distressing experiences more frequently (Grzywacz, Almeida, Neupert, & Ettner, 2004), other

research notes the substantial differences in the types and amounts of hassles individuals of

varying income levels may face (Chetty, Hendren, Kline, & Saez, 2014).

Figure 1

Difference Between Distress Frequency and Distress Intensity in Simulated Data
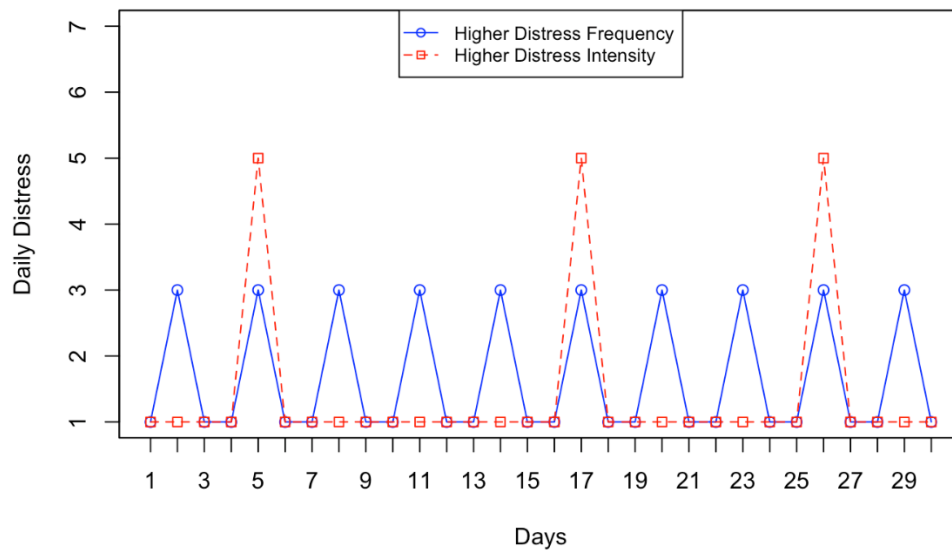
Notes. Two simulated individuals reporting on their daily levels of distress over a 30-day time period. Blue line depicts participant with higher levels of distress frequency. Red line depicts participant with higher levels of distress intensity. Both participants have similar levels of distress variability, as expressed through the within-participant standard deviation (*SD*).

We suggest that the intensity of distressing experiences varies by income because

financial resources allow individuals to both reduce the impact of any distressing episode, as

well as prevent intensely distressing episodes from occurring in the first place. That is, money

can help people resolve and prevent problems, allowing people to effectively "buy" themselves

out of distressing events they encounter, or before they even occur (Benzeval, Stansfeld, &

Thomas, 2007; Prawitz et al., 2006; Zhou, Vohs, & Baumeister, 2009). For example, money

allows people to decrease time stress (Whillans & West, 2019) or increase comfort and convenience, particularly when that money is readily available (Ruberton, Gladstone, & Lyubomirsky, 2016). This prediction is aligned with one study which found that individuals with lower levels of education reported more intense distressing experiences (Grzywacz et al., 2004). Overall, we suggest that financial scarcity is associated with greater distress intensity.

We additionally build on existing work to propose that the link between financial scarcity and distress intensity will be mediated by perceived control (Johnson & Krueger, 2006; Kraus et al., 2009; Markus & Snibbe, 2005). Financial scarcity can directly reduce perceived control because a lack of financial resources decreases an individual's feeling of agency (Johnson & Krueger, 2006; Kraus et al., 2009). A wide range of research in turn suggests that lacking control may increase distress intensity (Chou, Parmar, & Galinsky, 2016; Landau, Kay, & Whitson, 2015). For example, when individuals cannot control, or even just perceive that they cannot control, the duration of painful shocks, they report higher arousal (Glass et al., 1973). Similarly, lacking information about a medical procedure, which decreases perceived control, can increase anxiety intensity and recovery time (Luck, Pearson, Maddern, & Hewett, 1999). Finally, we draw on prior literature which finds a link between distress intensity and life satisfaction (Houben, Noortgate, & Kuppens, 2015), completing the link from financial scarcity via perceived control (see Figure 2).

Figure 2

Theoretical Model
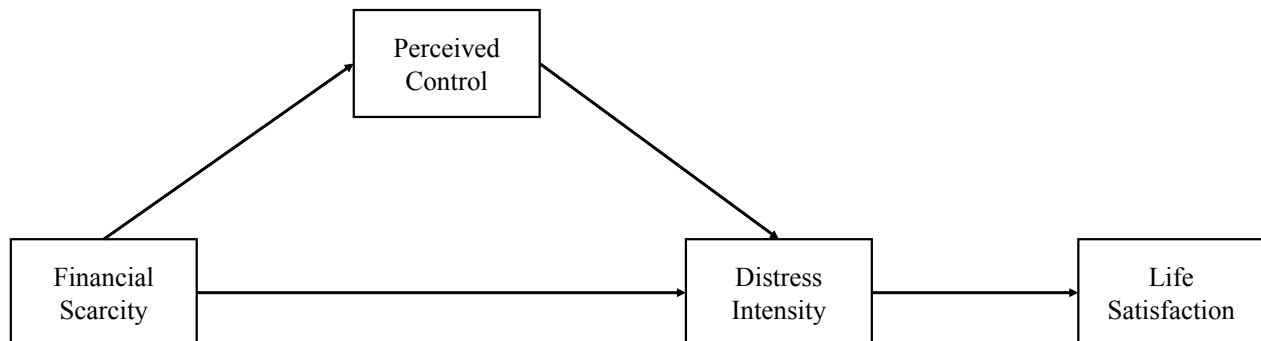
Note. This model suggests that financial scarcity lowers perceived control, which increases distress intensity (rather than distress frequency), which in turn lowers life satisfaction.

To test our theoretical model, we conducted a 30-day daily diary study with 522 participants and 13,733 total responses. Using this fine-grained data, we examined (a) whether financial scarcity is related to distress intensity and (b) whether the relationship between financial scarcity and life satisfaction is serially mediated by both perceived control and distress intensity. We also explore discriminant validity to a number of related variables and address potential omitted variable concerns. In a subsequent scenario study (*N*=376), we explored whether individuals with different income levels resolve everyday difficulties through different means, i.e., whether lower-income individuals are less likely to resolve everyday difficulties with financial resources, testing whether financial scarcity reduces the overall recourse people have available to them to address everyday hassles. The data and code required to reproduce our analysis results are available on the OSF:

https://osf.io/pjxfc/?view_only=fb2f9808334f4fcbb18ec033e30e9710.

Study 1

In Study 1, we tested our theoretical model through a 30-day daily diary study. In addition to providing data about their income and perceived control, participants provided real-time ratings of their daily affect, as well as a subsequent measure of their life satisfaction.

Methods

Participants. We recruited 800 participants through an initial screening survey on Amazon's Mechanical Turk. We did not conduct ex ante power analyses and instead chose to recruit the maximum number of participants given our research budget. In the study description, we highlighted the long-term and intensive nature of the study, and only allowed individuals to participate if they agreed to respond to the survey throughout its various phases. The data was collected at four time points: income was measured at T1, perceived control at T2, distress intensity/frequency through 30 daily measures at T3, and life satisfaction at T4. The final sample size was 522 (response rate: 65.25%), with 13,733 responses to the daily diary portion that formed part of T3. Based on the effect size of the focal regression reported below—i.e., the relationship between financial scarcity and distress variability—our observed statistical power in the current research was 89.76%, indicating that we were well-powered to detect our relationship of interest (Abraham & Russell, 2008).

Income (T1). Participants were asked to indicate their household income in the previous year with the following response options: "Less than $10,000," "$10,000 to $19,999," "$20,000 to $29,999," "$30,000 to $39,999," "$40,000 to $49,999," "$50,000 to $59,999," "$60,000 to $69,999," "$70,000 to $79,999," "$80,000 to $89,999," "$90,000 to $99,999," "$100,000 to $149,999," "$150,000 or more." Each response was then recoded to the middle of the scale point, whereas for the last option we chose the same increment in midpoint as for the previous

income level, i.e., $175,000 (Cheung & Lucas, 2016). We followed conventions established by prior literature and used logged income (Diener, Ng, Harter, & Arora, 2010), although the results are virtually identical when using raw income. Table S10 depicts the number of participants by income group.

Perceived Control (T2). One week after the end of T1, we measured perceived control with an eight-item scale (Kraus et al., 2009) with good reliability ($\alpha = .88$), each item rated on a scale ranging from "strongly disagree "(1) to "strongly agree" (7). Example items include, "I can do just about anything I really set my mind to," and "I often feel helpless in dealing with problems of life" (reversed).

Distress Intensity/Frequency (T3). One week after the end of T2, we measured distress through 30 daily surveys administered on weekday evenings over six consecutive weeks. Participants were asked to respond to the question, "To what extent did you feel this way today?", with the following three options (drawn from Mackinnon et al., 1999), "upset," "nervous," and "distressed" on a scale ranging from 1 (not at all) to 7 (very much so; $\alpha = .85$), which were subsequently averaged. Following prior literature, we calculated distress frequency by recoding the lowest response category to 0, and all other responses to 1, after which all responses were averaged within each participant (Schimmack, 2003; Schimmack & Diener, 1997). Distress intensity was calculated by recoding the lowest response category to "NA" and subsequently averaging all responses within each participant. Given that the distress scale ranged from 1 to 7, the lowest response category we used to calculate frequency and intensity was "1."

Life Satisfaction (T4). One week after the end of T3, we measured life satisfaction with three items (Diener, Emmons, Larsen, & Griffin, 1985) on a scale ranging from "strongly

disagree" (1) to "strongly agree" (7): "I am satisfied with my life," "My life is going well," and "In most ways my life is close to my ideal" (α = .93).

Sampling Weights. Participants in this study were recruited from Amazon's Mechanical Turk, and thus cannot be regarded as a representative draw of the general U.S. population. While several studies have documented the validity of Mechanical Turk in research (Chandler, Mueller, & Paolacci, 2014; Goodman, Cryder, & Cheema, 2013), the incomes of participants we recruit here may not reflect the income distribution of the general U.S. population. To alleviate this concern, we created post-stratification weights by income based on national U.S. census data using the *survey* package in *R*, which uses an Iterative Proportional Fitting algorithm to compute the weights (Lumley, 2019). Below, we present results with sampling weights, but all results hold without sampling weights as well (see Tables S1 and S2), evidencing the robustness of our findings along the income distribution. Finally, we also detail a lack of evidence in support of potential non-linearities below; that is, even if our sample is under-representative in terms of higher-income individuals, this is unlikely to drive our effects.

Control Variables.

Mean Distress. To provide evidence that financial scarcity is associated with distress intensity and not average distress levels, we calculated the mean distress experienced by each participant over the study period by averaging all daily distress responses. We note that while mean distress and distress intensity are highly correlated, analyses for multi-collinearity in all regressions showed that variance inflations factors were all well below the conventional threshold of 10 (Craney & Surles, 2002); in addition, all regressions show similar results whether or not we control for mean distress.

Positive Affect. To further highlight the specificity of the relationship between financial scarcity and distress intensity, we also measured positive affect with the following five items (Mackinnon et al., 1999): "inspired," "alert," "excited," "enthusiastic," and "determined" ($\alpha =$ .86). We subsequently calculated the positive affect mean, as well as positive affect variability through the within-participant standard deviation (Houben, Van Den Noortgate, & Kuppens, 2015). Note that all analyses remain similar when we calculate and control for positive affect frequency and intensity.

Demographics. We asked participants to report their age, gender, and education (with one of eight possible response options: "Less than high school degree," "High school graduate (high school diploma or equivalent including GED)," "Some college but no degree," "Associate degree in college (2-year)," "Bachelor's degree in college (4-year)," "Master's degree," "Doctoral degree," and "Professional degree (JD, MD)" given prior research which has found that these variables are related to affect variability (Houben, Noortgate, et al., 2015). Table 1 depicts the bivariate correlations of study variables.

Table 1

Bivariate Correlations of Study Variables

	1	2	3	4	5	6	7	8	9	10
1. Distress Intensity										
2. Distress Frequency	.37***									
3. Logged Income	-.14**	-.03								
4. Perceived Control	-.41***	-.38***	.14**							
5. Life Satisfaction	-.38***	-.35***	.22***	.52***						
6. Mean Distress	.82***	.77***	-.09*	-.48***	-.44***					
7. Mean Positive Affect	-.23***	-.20***	-.02	.36***	.49***	-.27***				
8. Positive Affect Variability	.26***	-.05	-.05	-.01	-.03	.08	-.16***			
9. Age	-.14**	-.20***	.11*	.05	.03	-.20***	.11*	-.14**		
10. Female	.06	.02	-.06	-.06	-.06	.06	.00	.17***	.12**	
11. Education	.08	.09*	.24***	-.10*	.03	.10*	-.03	.01	-.02	.01

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Results

We first tested whether income was related to distress intensity and find a statistically significant relationship (b = -.142, SE = .034, $p < .001$, 95% CI = [-.21, -.08], d = .37; see Table 2, Model 1), which remained robust when accounting for additional control variables (b = -.149, SE = .036, $p < .001$, 95% CI = [-.22, -.08], d = .37; see Table 2, Model 2), as well as distress frequency, mean distress, mean positive affect, and positive affect variability (b = -.054, SE = .015, $p < .001$, 95% CI = [-.08, -.02], d = .32; see Table 2, Model 3).[1] That is, greater financial scarcity (i.e., lower income) was related to more intense distress.

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[1] We also tested for possible multi-collinearity results by estimating the Variance Inflation Factor, and find that the highest terms—2.67 for both mean distress and distress frequency—are well below recommended cutoffs of 10 (Craney & Surles, 2002).

Table 2

Distress Intensity Predicted by Logged Income

	Model 1	Model 2	Model 3
(Intercept)	.006	-.260	-.538***
	(.044)	(.296)	(.150)
Logged Income	-.142***	-.149***	-.054***
	(.034)	(.036)	(.015)
Age		-.009*	.002
		(.005)	(.002)
Gender		.140	-.043
		(.090)	(.037)
Some college		.257	.053
		(.260)	(.106)
Associate degree		.292	.224*
		(.272)	(.112)
Bachelor's degree		.436	.077
		(.239)	(.098)
Master's degree		.449	.111
		(.258)	(.106)
Doctoral degree		.433	-.050
		(.373)	(.152)
Professional degree		.872*	.269
		(.380)	(.158)
Distress Frequency			-.576***
			(.030)
Mean Distress			1.251***
			(.029)
Mean Positive Affect			.017
			(.018)
Positive Affect Variability			.434***
			(.055)
R²	.034	.059	.846
Adj. R²	.032	.043	.842
Num. obs.	512	512	512
RMSE	.992	.987	.401

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Adj.= adjusted. R²= Proportion explained variance. RMSE= Root Mean Square Error.

In contrast, income was not significantly related to distress frequency ($b = -.027$, $SE = .034$, $p = .432$; 95% CI = [-.09, .04], $d = .07$; see Table 3, Model 1), a result which was similar when accounting for additional control variables (see Table 3, Models 2 and 3).

Table 3

Distress Frequency Predicted by Logged Income

	Model 1	Model 2	Model 3
(Intercept)	-.056	-.007	-.035
	(.045)	(.286)	(.138)
Logged Income	-.027	-.051	-.033
	(.034)	(.035)	(.017)
Age		-.015***	-.001
		(.004)	(.002)
Gender		.101	-.035
		(.089)	(.042)
Some college		.244	.089
		(.252)	(.122)
Associate degree		-.035	.188
		(.265)	(.128)
Bachelor's degree		.421	.105
		(.231)	(.112)
Master's degree		.574*	.226
		(.249)	(.121)
Doctoral degree		.269	-.074
		(.367)	(.174)
Professional degree		.797*	.431*
		(.374)	(.179)
Distress Intensity			-.751***
			(.039)
Mean Distress			1.366***
			(.038)
Mean Positive Affect			-.009
			(.022)
Positive Affect Variability			.023
			(.023)
R^2	.001	.057	.787
Adj. R^2	−.001	.040	.782
Num. obs.	520	520	512
RMSE	1.005	.984	.458

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Adj.= adjusted. R^2= Proportion explained variance. RMSE= Root Mean Square Error.

Mediation by Perceived Control. Next, we aimed to test whether the relationship between income and distress intensity was mediated by perceived control. First, we found that income was related to higher perceived control ($b = .160$, $SE = .033$, $p < .001$, 95% CI = [.10, .23], $d = 0.43$), and that perceived control was associated with lower distress intensity ($b = -.388$, $SE = .042$, $p < .001$, 95% CI = [-.47, -.31], $d = 0.81$). Subsequent analyses reveal that the

association between income and increased distress intensity was statistically mediated by lower perceived control (95% Confidence Interval: [-.063; -.020]; 10,000 bootstrapped iterations).

Serial Mediation on Life Satisfaction. Finally, we tested the full pathway from income to life satisfaction through both perceived control and distress intensity. To do so, we first tested whether income predicted life satisfaction, and found a statistically significant relationship ($b =$ .173, $SE = .036$, $p < .001$, 95% CI = [.10, .24], $d = 0.42$), aligned with prior research. Next, we found a statistically significant and negative relationship between distress intensity and life satisfaction ($b = -.363$, $SE = .043$, $p < .001$, 95% CI = [-.45, -.28], $d = 0.75$), which proved robust to the inclusion of distress frequency, mean distress, mean positive affect, and positive affect variability as control variables ($b = -.280$, $SE = .098$, $p = .005$, 95% CI = [-.47, .09], $d = 0.25$). We subsequently tested the serially mediated indirect effect of income on life satisfaction through both perceived control and distress intensity and found a statistically significant effect (95% confidence interval: [.055; .263]; 10,000 bootstrapped iterations). Thus, financial scarcity (i.e., lower income) is related to decreased life satisfaction first through lower perceived control and then through higher distress intensity.

Additional Analyses.

Discriminant Validity. In the Supplementary Materials, we detail that our results are specific to the relationship between financial scarcity and distress intensity, i.e., they do not extend to mean distress, positive affect, or fear-based negative affect intensity (see Tables S3-S7).

Potential Omitted Variable Bias. In the Supplementary Materials, we also explore whether the relationship between financial scarcity and distress intensity suffers from an omitted variable problem, i.e., a variable that is associated with both financial scarcity *and* distress

intensity. We identify one omitted variable candidate, neuroticism, and demonstrate that controlling for this potential omitted variable does not meaningfully change our results (see Table S8).

Potential Non-Linearity of Effects. Finally, in the Supplementary Materials we also explore whether the effect of income on distress intensity exhibits non-linearity, i.e., if there exist cut-off or satiation effects (e.g., Jebb, Tay, Diener, & Oishi, 2018). A regression spline analysis reveals that there exists no evidence for a non-linear relationship between income and distress intensity (see Figure S1).

Discussion

Study 1 provides empirical support for the idea that (a) financial scarcity is related to the *intensity* of each distress episode, (b) the link between financial scarcity and life satisfaction is serially mediated through both perceived control and distress intensity, (c) the effect of financial scarcity is specific to distress intensity, and does not extend to average distress, positive affect, or fear-based negative affect, (d) these results hold when accounting for a potentially omitted variable, neuroticism; and (e) this relationship is (log-)linear, and unlikely to be non-linear.

Study 2

In Study 1, we found that higher-income individuals reported lower levels of distress intensity, an effect that was statistically mediated by perceived control, which serially mediated the link between income and life satisfaction. In Study 2, we explore whether income shapes the ways in which individuals allocate resources to alleviate the adverse impact of daily stressors. That is, we test whether financial scarcity reduces the likelihood individuals feel they can rely on financial resources to resolve everyday difficulties, giving them less overall recourse to address daily hassles.

To do so, we held potentially distressing everyday hassles constant across individuals and observe how likely they are to resolve each with the help of money compared to their social relationships. We asked participants to imagine encountering a number of commonly experienced hassles. For each of these hassles, participants first provided an open-ended text response detailing how they would go about resolving it, and subsequently responded to a number of questions to indicate whether they would rely on financial or social resources to resolve the hassle. The open-ended responses were coded by two independent raters who indicated whether proposed solutions relied on financial resources.

Methods

We recruited 400 participants (*M*age = 30.39, *SD*age = 10.29, 52% female) from Prolific, an online survey provider. The sample size was determined with the help of an a priori power analysis which suggested that this sample size would provide us with 80% power to detect effects as small as $r = .14$, that is, the correlation coefficient of the relationship between logged income and distress intensity in Study 1. We removed 24 participants who provided non-sensical text responses to the open text boxes (see below for further detail) for a final sample size of 376. Note that all results hold even when including these participants.

Income. We asked participants to indicate their household income in the previous year with the following response options: "Less than $10,000," "$10,000 to $19,999," "$20,000 to $29,999," "$30,000 to $39,999," "$40,000 to $49,999," "$50,000 to $59,999," "$60,000 to $69,999," "$70,000 to $79,999," "$80,000 to $89,999," "$90,000 to $99,999," "$100,000 to $124,999," "$125,000 to $149,999", "$150,000 to $199,999" and "$200,000 or more" (note that we added two higher income response options vis-a-vis Study 1 to gain greater discernability at top income brackets). As in Study 1, we recoded response to the middle of the scale point

(whereas for the last option we chose the same increment in midpoint as for the previous income level, i.e., $225,000), and used logged income (although the results are virtually identical when using raw income).

Daily Hassles. We conducted a pre-test with 100 participants recruited via Prolific and followed two strategies to generate a list of personally relevant and timely hassles that would still be relevant during the COVID-19 pandemic (presented in randomized order).[2] First, we adapted a prior measure of daily hassles (Hohlm & Holroyd, 1992), which included 49 hassles (e.g., time pressure, work hassles, and so on), and asked respondents to rate each on a dichotomous "Yes/No" scale on the following question: "Are any of the hassles listed above identifiable to you and closely related to what you are facing during this pandemic?". Second, we asked participants to list ten hassles that they commonly face in their current environment. A total of 665 unique hassles were generated by participants, which we reduced to a shortlist of 108 hassles after excluding those that were idiosyncratic or not resolvable through money (e.g., mask-wearing skepticism).

We then combined data from both analytic strategies by extracting the hassles generated by prior research that were most relatable and timely (i.e., which had the greatest number of "Yes" ratings) and that were most commonly mentioned in the free-text responses. This procedure resulted in five widely relatable, shared, and timely hassles participants were facing during this time: "Getting from Place A to Place B is hard because public transportation is poor," "Cooking meals is hard because your schedule is interfering," "Making sure a sick family member or close friend is looked after," "Working from home is challenging (e.g., because of noise, lack of space, or other demands on your time)" and "Addressing time-consuming home

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[2] Note that we conducted this study in April 2021, in the middle of the COVID-19 pandemic, where many hassles were directly influenced by the challenges brought on by this crisis.

issues (e.g., maintenance or cleaning/washing)." In the same pilot study, we also asked

participants to briefly indicate how they address these hassles when they face them, and we

found that in addition to using money, a second common way was through the help of family and

friends—which aligns with prior research, showing that social resources are another way that

people resolve challenges they face (Frankenhuis & Nettle, 2019; Jachimowicz, Chafik, Munrat,

Prabhu, & Weber, 2017; Jachimowicz et al., 2020; Parks-Yancy, Ditomaso, & Post, 2007).

We utilized these insights from the pilot study in our main study. Participants recruited in

our main study were presented with these five hassles (see Table 4), one at a time and in random

order, with the following prompt, "Imagine you face this situation. How would you overcome

this?". Every participant was asked to respond to this question in two ways. First, through an

open-ended text box that allowed people to describe their own personal approaches to resolving

these hassles. On average, participants wrote 390 characters ($SD = 325.52$) across all five

hassles.

Two independent coders subsequently rated each text response according to whether

participants indicated resolving the hassle through one of the following means: "Money,"

"Family/Friends," "Both," or "Other." We aggregated ratings of "Money" and "Both" into one

code denoting the use of financial resources ($M = .35$, $SD = .19$), and ratings of "Family/Friends"

and "Both" into one code denoting the use of friends/family ($M = .22$, $SD = .19$; see Table 4 for

example responses from respondents by code). Interrater reliability was acceptable (Cohen's

kappa = .634). Second, we asked participants to rate, on a scale ranging from 1 ("strongly

disagree") to 7 ("strongly agree"), whether their way of resolving this hassle relied more on

money or family/friends, with the following prompt, "If you had to make a judgement on the best

way to resolve this hassle, what would you choose?" with options, "I would resolve this hassle

with money" ($M = 4.17$, $SD = 1.13$) and "I would resolve this hassle with the help of family and/or friends" ($M = 4.47$, $SD = 1.02$). This provided us with two different ways to measure whether participants relied on money or friends/family in resolving these hassles.

      Control Variables. We controlled for a number of demographic variables: age, gender, race, and the number of household members, and all results remain similar with or without these control variables.

Table 4

Example Responses to Resolving Hassles through Money or Family/Friends

Resolving hassles…	… through money	… through family/friends
Getting from Place A to Place B is hard because public transportation is poor	"I would buy a car or bike. Or I would budget for regular Uber rides." "Use other forms of transportation like Rideshare services (Uber, Lyft, etc.)."	"I would ask a friend or family member for a ride." "I would try and ask around for someone I know to give me a ride."
Cooking meals is hard because your schedule is interfering	"[…] I would try ordering takeout, especially if I knew I could get a big portion that would last me a few days of leftovers." "I would either buy fast food or frozen meals to quickly microwave."	"Make meal preparation ahead of time or ask help from family members." "I would meal prep or ask my wife for help."
Making sure a sick family member or close friend is looked after	"Pay a nurse or someone like that to stay with them." "I would hire a caretaker."	"I would coordinate with my family and friends to look after the person." "I would ask someone who I trust and has free time to check in on my family member/friend […]"
Working from home is challenging (e.g., because of noise, lack of space, or other demands on your time)	"[…] find ways to remove distractions (send children/pets to daycare or hire babysitter), buy noise cancelling headphones, buy a tiny desk or lap desk." "Buy a bigger house and have your own space." "I probably would find a space to rent for work."	"Set aside a space specifically for work and let everyone in your household know that you can't be disturbed whilst working unless its an emergency." "Work at a friends' house." "Dedicating a space and time when I had someone home to watch my child and could keep it quieter."
Addressing time-consuming home issues (e.g., maintenance or cleaning/washing)	"Hire a housekeeper or laundry service." "Pay someone else to do it if it is too much of a pain."	"Ask my family for help with chores." "I would ask a friend or family member to help me take on a part of the chores or tasks that need to be completed."

Note. Example responses from participants open text-box responses on how to resolve these hassles in case they encountered them. For full list, please review our OSF repository.

Results and Discussion

We tested whether income predicted how participants resolved a number of different hassles. Our analyses revealed that regardless of whether we analyzed the coded open-text responses or the self-reported scale, higher income levels were consistently related to an increased likelihood of resolving these hassles through money (coded: $b = .034$, $SE = .010$, $p < .001$; self-reported: $b = .184$, $SE = .058$, $p = .002$; see Figure 3). In contrast, income levels were not significantly related to resolving hassles through family/friends (coded: $b = .007$, $SE = .010$, $p = .500$; self-reported: $b = .023$, $SE = .053$, $p = .670$; see Figure 3). These effects are robust to the inclusion of control variables.[3]

Extending our Study 1 findings, Study 2 demonstrated that when presented with the same everyday difficulties, low-income individuals were less likely to rely on financial resources to resolve them. That is, financial scarcity reduced the tools individuals had at their disposal when encountering hassles, with less overall recourses available to them to address everyday hassles. Using financial resources appears to allow higher-income individuals to more quickly and effectively reduce the distressing impact of many of their everyday difficulties.

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[3] Additional analyses show that women (coded: $b = .092$, $SE = .019$, $p < .001$; self-reported: $b = .171$, $SE = .105$, $p = .103$) and participants with a greater number of household members (coded: $b = .016$, $SE = .007$, $p = .016$; self-reported: $b = .146$, $SE = .037$, $p < .001$) were more likely to rely on family/friends.

Figure 3

Relationship Between Logged Income and How Participants Resolve Hassles
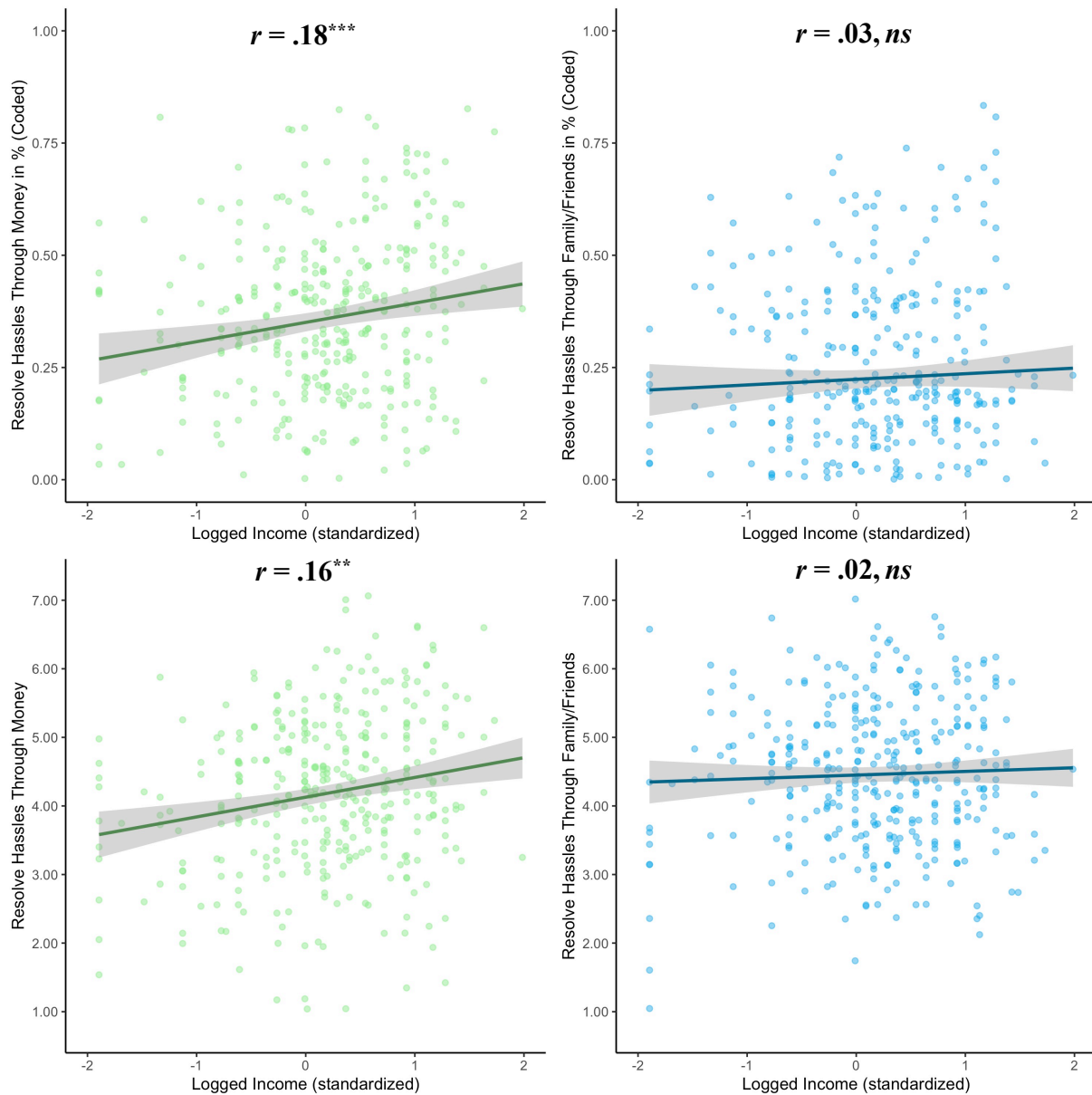
Note. The four panels of Figure 3 show the relationship between logged income and how participants resolve hassles. The top two panels show results for coded measures of open-text box responses, and the bottom two panels show results for self-reported responses. The two panels on the left in green reveal that regardless of measure, higher levels of income were related to a higher reliance on financial resources to resolve hassles. The two panels on the right in blue show that there is no statistically significant relationship between income and resolving hassles through family/friends.

General Discussion

The current research provides a novel conceptual window into the link between income and life satisfaction. Prior research has reported a robust link between income and life satisfaction. Although theories have predicted that this relationship is driven by the link between income and positive affect, the empirical literature does not demonstrate consistent support for this link (Hudson, Lucas, Donnellan, & Kushlev, 2016; Kahneman & Deaton, 2010; Kushlev, Dunn, & Lucas, 2015; Lindqvist et al., 2020). To make sense of this puzzle, we shifted the theoretical focus from happiness to the experience of distress. We reasoned that greater financial resources allow individuals to both reduce the impact of distressing hassles and prevent intensely distressing event from occurring in the first place. We further build on prior literature to identify income as providing people with a sense of control over their lives because financial resources provide individuals with greater recourses to reduce or resolve the distress caused by a stressful episode.

A 30-day daily diary study with 522 participants and 13,733 observations supported our serial mediation model, where income increased a sense of control, which mitigated the intensity of distress, which ultimately increased life satisfaction. Our subsequent scenario study with 376 participants revealed that financial scarcity reduced the repertoire of resources available to alleviate the impact of daily stressors. Although everyone, high and low-income individuals alike, tapped into social resources to resolve everyday hassles, only high-income individuals had the added luxury to draw on money to ease away their daily troubles.

The current research contributes to prior literature by highlighting a new path for how income may promote life satisfaction: Financial resources may provide individuals with an

important additional path to reducing the intensity of distressing hassles when they arise as well as preventing intensely stressful episodes in the first place.

Our mechanism of distress intensity may also affect low-income individuals in ways that go beyond life satisfaction and contribute to the cycle of poverty (Haushofer & Fehr, 2014). For example, having less income has been found to impede one's job performance (Meuris & Leana, 2018), long-term decision-making (Shah, Mullainathan, & Shafir, 2012), and the ability to build meaningful relationships (Chetty, Hendren, Lin, Majerovitz, & Scuderi, 2016). Because each distressing episode imposes negative pressure on low-income individuals (Haushofer & Fehr, 2014; Mani et al., 2013; Shah, Shafir, & Mullainathan, 2015), our research suggests that one way of breaking the cycle of poverty is to find ways to reduce the intensity of daily hassles. For example, providing stronger community structures may help buffer against the unpredictability that often accompanies distressing episodes (Hall, Zhao, & Shafir, 2014; Jachimowicz, Chafik, Munrat, Prabhu, & Weber, 2017). The current research highlights the emotional tax that financial scarcity imposes by impeding one's ability to reduce the impact of distressing episodes.

Limitations and Future Directions

Our results should be interpreted in light of several limitations. First, despite the richness of our data, our analysis remains correlational, which limits claims about the causal relationship between financial scarcity, perceived control, distress intensity, and life satisfaction. Subsequent studies should replicate our analyses and further explore the causal link between financial scarcity and distress intensity, e.g., through experimental studies with large-scale unconditional cash transfer programs (Haushofer & Shapiro, 2013) or by exploring potential shocks to the environment that may serve as instrumental variables (Wooldridge, 2012).

Second, we note that the data presented here is unable to speak to the mechanism by which financial resources reduce distress intensity in daily life. Our findings from Study 1 highlight that financial scarcity predicts distress intensity, but is unable to speak to whether this effect is the result of lower-income individuals experiencing the same stressors as more distressing, or whether the lack of financial resources a priori increases the likelihood of experiencing intensely stressful events; that is, while we observe that higher levels of distress intensity co-occur with financial scarcity, we do not observe which circumstances they face, and how these may trigger whether and how they use financial resources to reduce the impact of distressing episodes (see also Shah et al., 2015; Shah, Zhao, Mullainathan, & Shafir, 2018). While Study 2 suggests that low-income individuals are indeed less likely to use financial resources to respond to the same daily stressors, it remains unclear to what extent they also experience the same hassles as more distressing. Future research should aim to provide direct evidence for these two pathways (reactive and proactive).

A third limitation of our study is that it was conducted in a Western, individualistic society. It is possible that the relationship between financial scarcity and distress intensity may not apply equally to communal cultures where individuals are more able to resolve everyday hassles through social support rather than through money. For example, in more collectivistic cultures, individuals may be more likely to address everyday hassles through a broader community network, which collectively may have access to more social and financial resources (Hsee & Weber, 1999; Weber & Hsee, 1998; though see also: Gladstone, Jachimowicz, Greenberg, & Galinsky, 2021). As a result, an individual's financial scarcity may be less strongly related to distress intensity in collectivistic settings, a possibility future research could explore.

Conclusion

The current research offers a novel pathway for how income promotes life satisfaction. More money may empower individuals to resolve and prevent intensely distressing everyday hassles, smoothing the sharp spikes of daily life, whereas low-income individuals may be left to live in a more jagged reality.

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